UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,300	08/29/2005	Jingwu Z Zang	050989.0201.01USPC	3842

27148 7590 01/21/2009

POLSINELLI SHALTON FLANIGAN SUELTHAUS PC
700 W. 47TH STREET
SUITE 1000
KANSAS CITY, MO 64112-1802

EXAMINER	
DIBRINO, MARIANNE NMN	

ART UNIT	PAPER NUMBER
1644	

MAIL DATE	DELIVERY MODE
01/21/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/524,300	ZANG, JINGWU Z	
	Examiner	Art Unit	
	DiBrino Marianne	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31 and 33-42* is/are pending in the application.

4a) Of the above claim(s) *34-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *33 and 31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/23/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response filed 10/23/08 is acknowledged and has been entered.

2. Applicant is reminded of Applicant's election without traverse of Group III (claims 31-33), and species of SEQ ID NO: 1-6 in Applicant's responses filed 2/4/08 and 4/24/08, respectively.

Claims 31 and 33 read on the elected species.

Accordingly, claims 34-42 (non-elected groups I and II) are withdrawn from further consideration by the Examiner, 37 CFR 1.142(b), as being drawn to non-elected inventions.

Claims 31 and 33 are currently being examined.

3. Applicant is reminded that the oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP 602.01 and 602.02.

The oath or declaration is defective because: Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

The Examiner notes that Applicant is seeking to obtain a supplemental declaration (page 5 of Applicant's response at #1b).

4. Applicant's cancellation of claim 32 and the amendment of claim 33 has overcome the prior rejection of record of claims 32 and 33 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement (new matter rejection).

5. Applicant's cancellation of claim 32 and the amendment of claim 33 has overcome the prior rejection of record of claims 32 and 33 under 35 U.S.C. 112, first paragraph, enablement. The Examiner has reconsidered her position concerning "inactivated" recited in claim 31, and has withdrawn the rejection of said claim under U.S.C. 112, first paragraph, enablement.

6. Applicant's amendment of claim 33 has overcome the prior rejection of record of claim 33 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The following new ground of rejection is necessitated by Applicant's IDS filed 10/23/08.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

SEQ ID NO: 1 of the instant application is disclosed as "amino acids 110-126 of human myelin basic protein" [MBP] in the sequence listing, and SEQ ID NO: 2 of the instant application is disclosed as "amino acids 167 to 186 of human myelin basic protein".

However, Applicant's IDS reference Tejada-Simon *et al* (Eur. J. Immunol. 31: 907-917, 2001 that includes Jingwu Z. Zhang as an author) teach that a peptide identical to SEQ ID NO: 1 of the instant application is amino acid residues 83-99 of human MBP while a peptide that is identical to SEQ ID NO: 2 of the instant application is amino acid residues 151-170 of human MBP. This has bearing on the rejection set forth below. Applicant is requested to clarify this discrepancy.

8. Claims 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang *et al* (Science, 1993, 261: 1451-1454, Applicant's IDS reference filed 10/23/08) in view of Zhang (Crit. Rev. Immunol. 2001, 21: 41-55), and Tejeda-Simon *et al* (International Immunol. 2000, 12(12): 1641-1650, Zhang is an author).

Zhang *et al* teach that experimental autoimmune diseases can be treated by inoculation with autoreactive T cells (T cell vaccination), and that patients with MS were inoculated with irradiated (*i.e.,* inactivated) MBP-reactive T cells. Zhang *et al* further teach that T cell responses to the vaccine was induced to deplete circulating MBP-reactive T cells in the recipients. Zhang *et al* teach predominant reactivity to MBP peptides 84-102 and 143-168. Zhang *et al* do not depict the sequences of the peptides using single amino acid residue code (see entire reference).

Zhang *et al* differ from the claimed invention in that they don't *explicitly* teach that the vaccine comprises T cells that are reactive against SEQ ID NO: 1 and 2, nor that the vaccine further comprises, or in combination consists of, T cells that are reactive against SEQ ID NO: 3-6 in addition to SEQ ID NO: 1 and 2.

Zhang teaches that there are several myelin antigens implicated in MS, including MBP, PLP and MOG. Zhang further teaches that there is an immunodominant epitope between peptide residues 83-99 of human MBP, and that the T cell responses to MBP are focused on this region as well as on residues 151-170 during exacerbation and is shifted towards other epitopes of MBP at the time of remission. Zhang also teaches T cell vaccination with selected irradiated MBP-reactive T cell clones as a vaccine, resulting in a progressive decrease in the frequency or suppression of the circulating MBP-reactive T cells in an antigen-specific manner, and with reduced EDSS (Expanded Disability Status Score). Zhang does not teach which epitope(s) of MBP are being recognized by the administered T cells. Zhang teaches that it is important to incorporate most if not all candidate myelin antigens in the T cell vaccination protocol to test effectiveness (see entire reference).

Tejeda-Simon *et al* teach that a high precursor frequency of myelin-reactive T cells correlates with acute exacerbation in relapsing-remitting MS, correlating with reactivity to the immunodominant peptides of the candidate myelin antigens, predominantly BMP 150-170 in the majority of patients, and also MBP 83-99, PLP 30-49, PLP 180-199 and MOG 41-60, as well as the Th1 cytokine profile at the time of exacerbation (see entire reference, especially abstract and discussion sections).

WO 97/35879 A1 teaches MOG 20-mer peptides that are useful in compositions of the invention for treating MS, such as amino acid residues 1-20 and amino acid residues 21-40 (especially page 7 at Fig. 5 a legend, Figure 5a, claims) and in combination with other peptides from myelin antigens such as MBP and PLP (especially claims).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have included in the T cell vaccine taught by Zhang *et al* T cells reactive with the MBP peptides taught by Zhang *et al* or those taught by Zhang (SEQ ID NO: 1 and 2 of the instant claims) plus T cells reactive with the PLP peptides taught by Tejeda-Simon *et al* and T cells reactive with the MOG peptides taught by WO 97/35879 A1, plus or minus T cells reactive with the MOG peptide taught by Tejeda-Simon *et al*.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to make a T cell vaccine that incorporates T cells that are reactive towards the immunodominant peptides from the MBP, PLP and MOG myelin proteins.

Although the PLP and MOG peptides are not SEQ ID NO: 3-4 and 5-6, respectively, of the instant claims, the instant claims recite that the T cell vaccine comprises "inactivated T cells that are reactive against SEQ ID NOS: 1-6, *i.e.,* that are reactive against, not elicited by SEQ ID NOS: 1-6.

Zhang *et al* thus appear to implicitly teach an autologous T cell vaccine that consists of inactivated T cells that react with SEQ ID NO: 1 and 2 of the instant claims as SEQ ID NO: 1 is encompassed by MBP peptides 84-102 and SEQ ID NO: 2 is encompassed by to MBP peptide 143-168. PLP 30-49 taught by Tejeda-Simon *et al* is offset by one amino acid residue with respect to SEQ ID NO: 3 of the instant invention *i.e.,* amino acid residues 31-50 of PLP (as disclosed in the sequence listing), and PLP 180-199 is also offset by one amino acid residue with respect to SEQ ID NO: 4 of the instant invention, *i.e.,* amino acid residues 181-200 of PLP (as disclosed in the sequence listing). The MOG peptide 1-20 taught by WO 97/35879 A1 encompasses SEQ ID NO: 5 of the instant invention (amino acid residues 1-17), while the MOG peptide 20-40 overlaps SEQ ID NO: 6 of the instant invention (18-38) by all but four amino acid residues. It appears, absent evidence to the contrary, that the T cells in the vaccine of the combined references would be reactive against SEQ IS NO: 1-6 recited in the instant claims.

Therefore the claimed vaccine appears to be similar to the vaccine of the prior art absent a showing of unobvious differences. Since the Patent Office does not have the facilities for examining and comparing the composition of the instant invention to those of the prior art, the burden is on Applicant to show an unobvious distinction between the vaccine of the instant invention and that of the prior art. See In re Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

9. Applicant is reminded of the following. With regard to Applicant's letter filed 2/4/05 regarding the inventor's name, it is unclear if the difference in the spelling of the inventor's name in the present application versus in the priority documents is the result of a clerical error, *i.e.,* Jingwu Z. Zang in the instant application versus Jingwu Z. Zhang in the priority documents. Although 37 CFR 1.48(f) will act to automatically correct an earlier identification of inventorship in a nonprovisional application by the filing of an initial executed oath or declaration, 37 CFR 1.48(f) is not applicable for national stage applications filed under 35 U.S.C. 371 where the inventorship has been erroneously named in the international application. Accordingly, if the inventorship set forth in the oath or declaration filed in the national stage application differs from the inventorship specified in the international application, the requirements of 37 CFR 1.497(d) must be satisfied. See MPEP 1893.01(e). Applicant is reminded that if Applicant intends to change inventorship, such change is a petitionable matter.

10. No claim is allowed.

11. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 10/23/08 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marianne DiBrino whose telephone number is 571-272-0842. The Examiner can normally be reached on Monday, Tuesday, Thursday and Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Eileen B. O'Hara, can be reached on 571-272-0878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marianne DiBrino, Ph.D.
Patent Examiner
Group 1640
Technology Center 1600
January 13, 2009

/G.R. Ewoldt/
Primary Examiner, Art Unit 1644